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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,291	02/06/2001	Russell J. Apfel	2069.008800/TT3778	8686
23720	7590	06/28/2005		EXAMINER
				RYMAN, DANIEL J
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/778,291	APFEL, RUSSELL J.
Examiner	Art Unit	
Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 May 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 20 May 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenoi et al. (USPN 6,507,606) in view of Shapiro et al. (USPN 6,870,888).

4. Regarding claims 1, 12, and 24, Shenoi discloses a method of and apparatus for improving at least one gain bandwidth path, the method comprising the steps of and the apparatus comprising means for: monitoring at least one signal being transmitted (col. 8, lines 3-24); and performing a gain/bandwidth control process upon said monitoring of said signal (col. 8, lines 3-24).

Shenoi does not expressly disclose that performing said gain/bandwidth control process comprises controlling a gain of a portion of said signal based upon determining a bandwidth requirement of a signal path associated with said portion of said signal. Shapiro teaches, in an ADSL system (col. 5, lines 61-62 and col. 6, lines 13-16), assigning a gain (ref. 76: G1, G2, etc.) for a portion of a signal transmitted in a particular subchannel, where the particular subchannel has a specific bandwidth requirement (col. 7, lines 36-55). Therefore, the gain of a signal will

depend upon the bandwidth of the signal since the number of subchannels used to transmit the signal will vary according to bandwidth where each subchannel has a specific gain. Shapiro assigns each subchannel a particular gain in order to maximize the amount of information that can be loaded into the channel (col. 6, lines 31-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the gain/bandwidth control process by controlling a gain of a portion of the signal based upon determining a bandwidth requirement of a signal path associated with the portion of said signal in order to maximize the amount of information that can be loaded into the channel.

5. Regarding claim 2, Shenoi in view of Shapiro discloses that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24).

6. Regarding claim 3, Shenoi in view of Shapiro does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a voice signal. However, Shenoi in view of Shapiro does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to frequency band and cable length (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi in view of Shapiro also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (Shenoi: col. 2, lines 35-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a voice signal in order to compensate for loss due to the cable in the voice band.

7. Regarding claim 4, Shenoi in view of Shapiro does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a DC signal. However, Shenoi in view of Shapiro does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to frequency band and cable length (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi in view of Shapiro also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (Shenoi: col. 2, lines 35-50). Examiner takes official notice that the voice band comprises a DC signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a DC signal in order to compensate for loss due to the cable in the voice band.

8. Regarding claim 5, Shenoi in view of Shapiro does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a ringing signal. However, Shenoi in view of Shapiro does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to frequency band and cable length (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi in view of Shapiro also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (Shenoi: col. 2, lines 35-50). Examiner takes official notice that the voice band comprises a ringing signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a ringing signal in order to compensate for loss due to the cable in the voice band.

9. Regarding claims 6 and 25, Shenoi in view of Shapiro discloses that performing a gain/bandwidth control process further comprises: determining an approximate length of at least one signal path carrying said signal (Shenoi: col. 8, lines 3-24); determining a bandwidth requirement of said signal path (Shenoi: col. 8, lines 3-24 and Shapiro: col. 7, lines 36-55); determining a gain factor to be applied upon said signal path (Shenoi: col. 8, lines 3-24 and Shapiro: col. 7, lines 36-55); separating said signal path in response to at least one of said approximate length of said signal path, said bandwidth requirement of said signal path, and said gain factor to be applied upon said signal path (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62 and col. 7, lines 36-55); and applying an appropriate gain within said bandwidth upon said separated signal path (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62).

10. Regarding claim 7, Shenoi in view of Shapiro discloses summing said signal path in response to applying said gain upon said signal path to at least one other signal path (Shenoi: Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

11. Regarding claim 8-11; incorporating arguments from claims 3-5, Shenoi in view of Shapiro does not expressly disclose that applying an appropriate gain within said bandwidth upon said separated signal path further comprises one of: applying a gain of 10 in a bandwidth of 500 KiloHertz to 5 MegaHertz in response to a determination that said signal path is a data signal path; applying a gain of 3 in a bandwidth of 200 Hertz to 20 KiloHertz in response to a determination that said signal path is a voice signal path; applying a gain of 140 in a bandwidth of 100 Hertz to 200 Hertz in response to a determination that said signal path is a DC signal path; or applying a gain of 140 in a bandwidth of 100 Hertz to 200 Hertz in response to a determination that said signal path is a ringing signal path. However, Shenoi in view of Shapiro

does disclose that the frequency range used in DSL is vendor specific (Shenoi: col. 7, lines 1-24) and that the gain will depend on the distance traveled and frequency characteristics of the cable (Shenoi: col. 8, lines 3-24). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Shenoi in view of Shapiro discloses applying a gain in a particular bandwidth, it would have been obvious to one of ordinary skill in the art to apply any size of gain to any frequency bandwidth absent a showing of criticality by Applicant.

12. Regarding claim 13, Shenoi in view of Shapiro discloses that said first circuit portion further comprises at least one differential signal driver is capable of driving at least one of a voice signal, a data signal, a DC signal, and a ringing signal onto said subscriber line (Shenoi: col. 2, lines 13-25) where “one of” is a broad phrase.

13. Regarding claim 14, Shenoi in view of Shapiro discloses that said subscriber line is a medium capable of transmitting signals (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24).

14. Regarding claim 15, Shenoi in view of Shapiro discloses that said subscriber line is comprised of a subscriber loop (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24).

15. Regarding claim 16, Shenoi in view of Shapiro discloses that said second circuit portion is a gain/bandwidth controller (Shenoi: col. 8, lines 3-24).

16. Regarding claim 17, Shenoi in view of Shapiro discloses that said gain/bandwidth controller further comprises: a signal path separator capable of separating a signal path based upon at least one of said bandwidth requirement, signal accuracy requirement, and a signal path characteristic (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62); a plurality of gain/bandwidth circuits coupled with said signal path separator, said gain/bandwidth circuit being capable of applying an appropriate gain based upon said separation of said signal paths (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62); and a summer coupled with said plurality of gain/bandwidth circuits, said summer being capable of summing a plurality of signals from said plurality of gain/bandwidth circuits and producing an output signal (Shenoi: Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

17. Regarding claim 18, Shenoi in view of Shapiro discloses a system for supporting voice band and data band communications, comprising: a sum block capable of receiving at least one of a voice signal, a DC signal, a ringing signal, and a data signal (Shenoi: col. 2, lines 13-25) where “at least one” only requires one of the signals; at least one differential signal driver coupled to said sum block, wherein said differential signal drivers are capable of driving at least one of said voice signal, a DC signal, a ringing signal, and said data signal onto a subscriber line (Shenoi: col. 2, lines 13-25); and a gain/bandwidth controller coupled with said sum block and said differential signal driver, wherein said gain/bandwidth controller is capable of separating at least one signal path and applying an appropriate gain upon a signal on said subscriber line (Shenoi: col. 8, lines 3-24).

18. Regarding claim 19, Shenoi in view of Shapiro discloses that said sum block is capable of receiving at least one of a: DC ring signal; a metering signal; a voice signal; and a data signal (Shenoi: col. 2, lines 13-25).

19. Regarding claim 20, Shenoi in view of Shapiro discloses that said sum block is capable of summing two or more of said DC ring signal, said metering signal, said voice signal, and said data signal (Shenoi: col. 2, lines 13-25).

20. Regarding claim 21, Shenoi in view of Shapiro discloses that said subscriber line is a medium capable of transmitting signals (Shenoi :col. 2, lines 13-25).

21. Regarding claim 22, Shenoi in view of Shapiro discloses that said subscriber line is comprised of a subscriber loop (Shenoi: col. 2, lines 13-25 and col. 8, lines 3-24).

22. Regarding claim 23, Shenoi in view of Shapiro discloses that said gain/bandwidth controller further comprises: a signal path separator capable of separating a signal path based upon at least one of said bandwidth requirement, signal accuracy requirement, and a signal path characteristic (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62); a plurality of gain/bandwidth circuits coupled with said signal path separator, said gain/bandwidth circuit being capable of applying an appropriate gain based upon said separation of said signal paths (Shenoi: col. 8, lines 3-24 and Shapiro: col. 6, lines 31-62); and a summer coupled with said plurality of gain/bandwidth circuits, said summer being capable of summing a plurality of signals from said plurality of gain/bandwidth circuits and producing an output signal (Shenoi: Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665


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